

IN THE CLAIMS:

The following listing of claims will replace all prior versions, and listings of claims in the application:

Listing of Claims:

Claim 1 (*Previously Presented*): A method for measuring data quality of service on a communication path between a first node in a traffic wireless network and a second node in a data network, the method comprising:

sending to the first node command information related to data quality of service measurements for at least one of the communications path and the second node;

performing measurements on at least one of the communication path and the second node to produce measurement information in relation to said command information; and

receiving response information in relation to said measurement information and said command information.

Claim 2 (*Original*): The measuring method of claim 1 wherein said sending step uses a wireless link.

Claim 3 (*Original*): The measuring method of claim 1, wherein said sending step uses a CDPD link.

Claim 4 (*Original*): The measuring method of claim 1,

wherein said sending step uses a wireless LAN link.

Claim 5 (Original): The measuring method of claim 1,
wherein said sending step uses a wired link.

Claim 6 (Original): The measuring method of claim 1,
wherein said receiving step uses a wireless link.

Claim 7 (Original): The measuring method of claim 1,
wherein said receiving step uses a CDPD link.

Claim 8 (Original): The measuring method of claim 1,
wherein said receiving step uses a wireless LAN link.

Claim 9 (Original): The measuring method of claim 1,
wherein said receiving step uses a wired link.

Claim 10 (Original): The measuring method of claim 1,
wherein said performing step produces measurement information
related to circuit switched data.

Claim 11 (Original): The measuring method of claim 1,
wherein said performing step produces measurement information
related to packet data.

Claim 12 (Original): The measuring method of claim 1,
wherein said performing step produces measurement information

related to SMS messages.

Claim 13 (*Original*): The measuring method of claim 1, wherein said performing step produces measurement information related to wireless Internet access.

Claim 14 (*Original*): The measuring method of claim 1, wherein said performing step produces measurement information related to wireless Internet transactions.

Claim 15 (*Original*): The measuring method of claim 14, wherein wireless Internet transactions are e-commerce transactions.

Claim 16 (*Original*): The measuring method of claim 1, wherein said performing step produces measurement information related to push data.

Claim 17 (*Original*): The measuring method of claim 1, wherein said performing step produces measurement information related to latency.

Claim 18 (*Original*): The measuring method of claim 1, wherein said performing step produces measurement information includes Layer 3 network information.

Claim 19 (*Original*): The measuring method of claim 1,

wherein said performing step produces measurement information includes RF information.

Claim 20 (*Original*): The measuring method of claim 1, wherein said performing step produces measurement information includes call connection information.

Claim 21 (*Original*): The measuring method of claim 1, wherein said performing step produces measurement information related to iDEN.

Claim 22 (*Original*): The measuring method of claim 1, wherein said performing step produces measurement information related to CDMA.

Claim 23 (*Original*): The measuring method of claim 1, wherein said performing step produces measurement information related to TDMA.

Claim 24 (*Original*): The measuring method of claim 1, wherein said performing step produces measurement information related to AMPS.

Claim 25 (*Previously Presented*): A method for measuring data quality of service in a traffic wireless network comprising:
 sending command information related to data quality of

service measurements;

performing measurements to produce measurement information in relation to said command information;

receiving response information in relation to said measurement information and said command information; and monitoring WAP gateway functions.

Claim 26 (Previously Presented): A method for measuring data quality of service in a traffic wireless network comprising:

sending command information related to data quality of service measurements;

performing measurements to produce measurement information in relation to said command information;

receiving response information in relation to said measurement information and said command information; and benchmarking in relation to a WAP gateway.

Claim 27 (Canceled)

Claim 28 (Original): The measuring method of claim 1, comprising the further step of:

scheduling missions related to said command information.

Claim 29 (Original): The measuring method of claim 1,

comprising the further step of:

generating test traffic related to said measurement information.

Claim 30 (Original): The measuring method of claim 1, comprising the further step of:

storing said control information at a remote unit.

Claim 31 (Original): The measuring method of claim 1, comprising the further step of:

storing said measurement information at a remote unit.

Claim 32 (Original): The measuring method of claim 1, comprising the further step of:

pre-processing said measurement information at a remote unit.

Claim 33 (Original): The measuring method of claim 1, comprising the further step of:

post-processing said measurement information at a back end processor.

Claim 34 (Original): The measuring method of claim 1, comprising the further step of:

organizing remote unit data, related to said command information, at a back end processor.

Claim 35 (*Original*): The measuring method of claim 1, wherein said sending step includes sending said command information from a back end processor to at least one of a plurality of remote unit.

Claim 36 (*Original*): The measuring method of claim 1, wherein said performing step includes performing said measurements using one of a plurality of remote units.

Claim 37 (*Original*): The measuring method of claim 1, wherein said receiving step includes receiving said response information at a back end processor from at least one of a plurality of remote units.

Claim 38 (*Previously Presented*): A measuring system for measuring data quality of service on communication paths between remote nodes in a wireless network and a node on a data network, the system comprising:

a back end processor for controlling the measuring system;

a plurality of remote units, in communication with said back end processor via a control link, acting as remote nodes to perform measurements on at least one of the communication paths and the node on the data network.

Claims 39-79 (*Canceled*)

Claim 80 (*Previously Presented*): A measuring system for measuring data quality of service on at least one traffic wireless network, comprising:

a back end processor for controlling the measuring system;

a plurality of remote units, in communication with said back end processor via a control link, for performing measurements on the at least one traffic wireless network; and

a WAP monitor for monitoring WAP gateway functions.

Claim 81 (*Previously Presented*): A measuring system for measuring data quality of service on at least one traffic wireless network, comprising:

a back end processor for controlling the measuring system;

a plurality of remote units, in communication with said back end processor via a control link, for performing measurements on the at least one traffic wireless network; and

a WAP benchmarker for benchmarking in relation to a WAP gateway.

Claims 82-88 (*Canceled*)

Claim 89 (*Previously Presented*): A remote unit, which is one of a plurality of remote units that communicates with a back end processor, for measuring data quality of service on a communication path between a first node in a traffic wireless network and a second node in a data network, the remote unit comprising:

a control unit for controlling said remote unit;

a location unit for providing position information;

a control link modem for communicating via a control link with the back end processor; and

at least one traffic modem for performing measurements on at least one of the communication path and the second node.

Claim 90 (*Original*): The remote unit of claim 89, wherein said control unit is a portable computer.

Claim 91 (*Original*): The remote unit of claim 89, wherein said control unit is a single board computer.

Claim 92 (*Original*): The remote unit of claim 89, wherein said location unit is a GPS receiver.

Claim 93 (*Original*): The remote unit of claim 89, wherein

said control link modem is a CDPD modem.

Claim 94 (Original): The remote unit of claim 89, wherein said control link modem is a software-defined radio modem.

Claim 95 (Original): The remote unit of claim 89, wherein said control link modem is a wired modem.

Claim 96 (Original): The remote unit of claim 89, wherein each traffic modem of said at least one traffic modem performs measurements on a respective traffic wireless network of the at least one traffic wireless network.

Claim 97 (Canceled)

Claim 98 (Original): The remote unit of claim 89, wherein a respective traffic modem of said at least one traffic modem is a modem module.

Claim 99 (Original): The remote unit of claim 89, wherein a respective traffic modem of said at least one traffic modem is a cellular phone.

Claim 100 (Original): The remote unit of claim 89, wherein a respective traffic modem of said at least one traffic modem is a software-defined radio.

Claim 101 (*Original*): The remote unit of claim 89, wherein a respective traffic modem of said at least one traffic modem is an iDEN modem.

Claim 102 (*Original*): The remote unit of claim 89, wherein a respective traffic modem of said at least one traffic modem is a CDMA modem.

Claim 103 (*Original*): The remote unit of claim 89, wherein a respective traffic modem of said at least one traffic modem is a TDMA modem.

Claim 104 (*Original*): The remote unit of claim 89, wherein a respective traffic modem of said at least one traffic modem is a GSM modem.

Claim 105 (*Original*): The remote unit of claim 89, wherein said measurements are performed on circuit switched data.

Claim 106 (*Original*): The remote unit of claim 89, wherein said measurements are performed on packet data.

Claim 107 (*Original*): The remote unit of claim 89, wherein said measurements are performed on SMS messages.

Claim 108 (*Original*): The remote unit of claim 89, wherein said measurements are performed on wireless Internet access.

Claim 109 (*Original*): The remote unit of claim 89, wherein said measurements are performed on wireless Internet transactions.

Claim 110 (*Original*): The remote unit of claim 89, wherein said measurements are performed on wireless Internet e-commerce transactions.

Claim 111 (*Original*): The remote unit of claim 89, wherein said measurements are performed on push data.

Claim 112 (*Original*): The remote unit of claim 89, wherein said measurements include latency measurements.

Claim 113 (*Original*): The remote unit of claim 89, wherein said measurements include data reliability.

Claim 114 (*Original*): The remote unit of claim 89, wherein said measurements include Layer 3 network information.

Claim 115 (*Original*): The remote unit of claim 89, wherein said measurements include RF information.

Claim 116 (*Original*): The remote unit of claim 89, wherein said measurements include call connection information.

Claim 117 (*Original*): The remote unit of claim 89, wherein

each of said plurality of remote units includes a battery backup for providing backup battery power.

Claim 118 (*Original*): The remote unit of claim 89, further comprising:

an external storage for storing at least one of said measurements.

Claim 119 (*Original*): The remote unit of claim 89, further comprising:

a wireless LAN device for communicating with the back end processor.

Claim 120 (*Original*): The remote unit of claim 89, further comprising:

an RF scanner for measuring the at least one traffic wireless network.

Claim 121 (*Original*): The remote unit of claim 120, wherein said RF scanner is a software-defined radio.

Claim 122 (*Original*): The remote unit of claim 89, wherein said remote unit is stationary.

Claim 123 (*Original*): The remote unit of claim 89, wherein said remote unit is mobile.

Claim 124 (*Original*): The remote unit of claim 89, wherein said control link is wired.

Claim 125 (*Original*): The remote unit of claim 89, wherein said control link is wireless.

Claim 126 (*Canceled*)

Claim 127 (*Currently Amended*): A method for measuring data quality of service on communication paths between plural remote units in a traffic wireless network and a second node in a data network, using a back end processor and the plural remote units, the method comprising:

sending command information from the back end processor to at least two of the plural remote units, the command information being related to data quality of service measurements for at least one of the communication paths and the second node;

performing measurements on at least one of the communication paths and the second node, using the at least two of the plural remote units, to produce measurement information in relation to said command information; and

receiving response information at the back end processor from the at least two of the plural remote units, said response information being in relation to said

measurement information and said command information;
wherein said response information provides a measure of
data quality of service for at least one of the ~~digital~~
communication paths and the second node.

Claim 128 (Previously Presented): A method for measuring
data quality of service on a communication path between a first
node in a traffic wireless network and a second node in a data
network, the method comprising:

receiving at the first node command information related
to data quality of service measurements for at least one of
the communication path and the second node, the command
information being sent from a back end processor;

performing one or more measurements of performance on
at least one of the communication path and the second node
to produce measurement information in relation to said
command information; and

sending response information in relation to said
measurement information and said command information to the
back end processor.

Claim 129 (Previously Presented): A method for producing a
measurement result that is indicative of data quality of service
on communication paths between plural remote units in a traffic

wireless network and a second node on a data network, the method comprising:

sending command information to the plural remote units, said command information being related to data quality of service measurements for at least one of the communication paths and the second node;

receiving response information from the plural remote units, said response information being in relation to said command information and measurements performed on the at least one of the communication paths and the second node via the plural remote units; and

generating a measurement result based on said response information.

Claim 130 (Previously Presented): A system for assessing data quality of service on communication paths between remote nodes in a wireless network and a node on a data network, the system comprising:

means for obtaining measurements, at a statistically significant number of locations, of a performance parameter of at least one of the communications paths and the node on the data network; and

means for consolidating information indicative of the measurements obtained by the means for obtaining;

wherein the information consolidated by the means for consolidating provides an assessment of data quality of service for the at least one of the communication paths and the node on the data network.

Claim 131 (Original): The system of claim 130, wherein the means for obtaining measurements comprises plural remote units.

Claim 132 (Original): The system of claim 131, wherein a portion of the plural remote units are mobile units.

Claim 133 (Original): The system of claim 131, wherein substantially all of the plural measurement units are mobile units.

Claim 134 (Original): The system of claim 131, wherein substantially all of the plural measurement units are stationary units.

Claim 135 (Original): The system of claim 130, wherein the means for consolidating comprises a back end processor.

Claim 136 (Original): The system of claim 130, wherein the means for obtaining measurements performs the function of obtaining measurements in response to command information received from the means for consolidating.

Claim 137 (*Previously Presented*): A device for obtaining measurements indicative of data quality of service for at least one of communication paths between the device on a wireless network providing data service and a node on a data network, the device comprising:

a control link modem providing communications with a back end processor;

a traffic modem providing communications via the wireless network;

a location unit providing position information; and

a computer, the computer comprising:

a processor in communication with the control link modem and the traffic modem, and being connected to the location unit, and

a memory, connected to the processor, bearing software instructions adapted to enable the computer to perform the steps of:

receiving command information from the back end processor;

sending test traffic over one or more of the communication paths from the device on the wireless network to the node on the data network based on the command information received from the

back end processor;
receiving response traffic over the wireless network from the node on the data network in reply to the test traffic;
recording measurement information comprising information regarding the test traffic, the response traffic, and location information contemporaneous with the step of receiving response traffic; and
sending the recorded measurement information to the back end processor.

Claim 138 (Previously Presented): A device for obtaining measurements indicative of data quality of service for at least one of communication paths between the device on a wireless network providing data service and a node on a data network, the device comprising:

a control link modem providing communications with a back end processor;
a traffic modem providing communications via the wireless network;
a location unit providing position information; and
a computer, the computer comprising:
a processor in communication with the control link

modem and the traffic modem, and being connected to the location unit, and

a memory, connected to the processor, bearing software instructions adapted to enable the computer to perform the steps of:

receiving command information from the back end processor;

receiving test traffic over one or more of the communication paths between the device on the wireless network and the node on the data network; recording measurement information comprising

information regarding the test traffic and location information contemporaneous with the step of receiving test traffic; and

sending the recorded measurement information to the back end processor.

Claim 139 (Previously Presented): A device for obtaining measurements indicative of data quality of service for at least one of communication paths between the device on a wireless network providing data service and a node on a data network, the device comprising:

a modem providing communications with a back end processor and providing communications via the wireless network;

a location unit providing position information; and
a computer, the computer comprising:

 a processor in communication with the modem and being
 connected to the location unit, and

 a memory, connected to the processor, bearing software
 instructions adapted to enable the computer to perform
 the steps of:

 receiving command information from the back end
 processor;

 sending test traffic over one or more of the
 communication paths from the device on the
 wireless network to the node on the data network
 based on the command information received from the
 back end processor;

 receiving response traffic over the wireless network
 from the node on the data network in reply to the
 test traffic;

 recording measurement information comprising
 information regarding the test traffic, the
 response traffic, and location information
 contemporaneous with the step of receiving
 response traffic; and

 sending the recorded measurement information to the

back end processor.

Claim 140 (*Previously Presented*): A device for obtaining measurements indicative of data quality of service for at least one of communication paths between the device on a wireless network providing data service and a node on a data network, the device comprising:

a modem providing communications with a back end processor and providing communications via the wireless network;

a location unit providing position information; and
a computer, the computer comprising:

a processor in communication with the modem and being connected to the location unit, and

a memory, connected to the processor, bearing software instructions adapted to enable the computer to perform the steps of:

receiving command information from the back end processor;

receiving test traffic over one or more of the communication paths between the device on the wireless network and the node on the data network;
recording measurement information comprising information regarding the test traffic and location information contemporaneous with the step

of receiving test traffic; and
sending the recorded measurement information to the
back end processor.

Claims 141-143 (*Canceled*)

Claim 144 (*Previously Presented*): The measuring method of
claim 1, wherein said performing step produces measurement
information related to CDPD.

Claim 145 (*Previously Presented*): The measuring method of
claim 1, wherein said performing step produces measurement
information related to PDAs.

Claim 146 (*Previously Presented*): The measuring method of
claim 1, wherein said performing step produces measurement
information related to GSM.

Claims 147-148 (*Canceled*)

Claim 149 (*Previously Presented*): The remote unit of claim
89, wherein a respective traffic modem of said at least one
traffic modem is a PDA modem.

Claim 150 (*Previously Presented*): The remote unit of claim
89, wherein a respective traffic modem of said at least one
traffic modem is a CDPD modem.

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PATENT APPLICATION

Claim 151 (*Previously Presented*): The remote unit of claim 89, wherein said measurements are performed on PDA traffic.

Claim 152 (*Previously Presented*): The remote unit of claim 89, wherein said measurements are performed on CDPD traffic.

Claim 153 (*Previously Presented*): The measuring method of claim 1, wherein said performing step produces measurement information related to private data network traffic.

Claim 154 (*Canceled*)

Claim 155 (*Previously Presented*): The remote unit of claim 89, wherein said measurements are performed on private data network access.

Claims 156-162 (*Canceled*)